



Title of Proposal **NUMERIC Growth: Supporting Mathematics Competitions and a Mathematics Fair in Northern Ontario**

Contact information

*The one person and place to
Communicate with the applicant(s).*

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Institution or department to administer grant funds

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Summary *Less than 100 words* Total amount requested in this competition \$ **6000.00**

The Nipissing University Mathematics Education, Research and Information Centre (NUMERIC) represents a group of educators from the Faculty of Arts and Science, the Faculty of Education, and the local community who share an interest in promoting the learning and appreciation of mathematics through a variety of sponsored events. We are applying for \$2000 per year for three years to specifically help us fund two Mathematics Competitions (Grades 9-10 and 11-12) and our newly-launched Mathematics Fair (2008). We would also like to document these activities with digital video footage via our website in order to share these ideas/resources with a wider audience.

Applicants

Put any specific information on the relevant experience or expertise of an applicant in "Other".

Name(s)	Dr. Daniel Jarvis	Dr. Vesko Valov	Dr. Alexandre Karassev
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Position	Assistant Professor (Mathematics Education)	Professor of Mathematics Department of Computer Science & Mathematics (Topology, Analysis)	Assistant Professor of Math Department of Computer Science & Mathematics (Topology, Analysis)
Employer	Nipissing University	Nipissing University	Nipissing University
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CMS member number

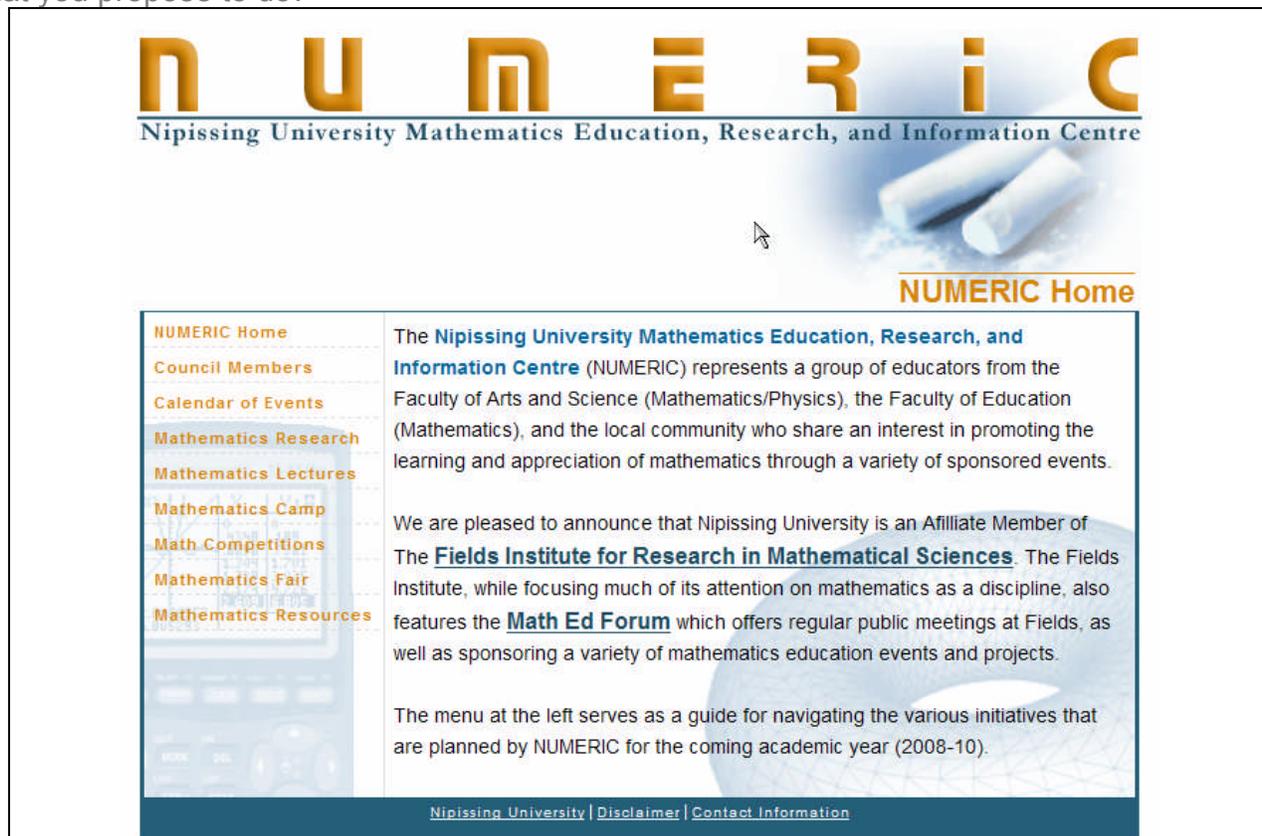
Member (2009)

Applicants

Put any specific information on the relevant experience or expertise of an applicant in "Other".

Name(s)	Dr. Douglas Franks	Katarin MacLeod	Neil Munro
E-mail	<u>dougf@nipissingu.ca</u>	<u>katarinm@nipissingu.ca</u>	<u>alexandk@nipissingu.ca</u>
Position	Associate Professor (Mathematics Education)	Assistant Professor (Math/Physics Education)	Secondary School Mathematics Teacher
Employer	Nipissing University	Nipissing University	Retired/Event Organizer
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What you propose to do:



NUMERIC Website: <http://www.nipissingu.ca/numeric/index.asp>

Over the next three years (2008-2011), our NUMERIC group plans to continue to host a Grade 9-10 Mathematics Competition in November, a Mathematics Fair in April, and a Grade 11-12 Mathematics Competition in May. We have developed good working relations with a group of local mathematics educators (elementary and secondary level) who now serve on committees to help plan and participate in these events which require a great deal of organization and time/energy.

The two **Mathematics Competitions**, spear-headed by an enthusiastic local mathematics teacher, Neil Munro, have been taking place for a number of years and have grown to be very popular with both students and teachers (i.e., approx. 110 people involved in each event). The Grade 9-10 competition often groups students randomly into teams (as some schools from across our large geographic board can send more students than others) as they compete on problem sets. In the Grade 11-12 competition, school teams compete directly on both group problem sets and on an individual challenge section. In both cases, the papers are marked the same day by a group of volunteer mathematicians/teachers/pre-service teacher candidates, providing instant feedback and closure (like a sporting event) by the end of the day. Prizes, food, local media, and mention of the year's top three teams on our website are all also part of these experiences.

The **Mathematics Fair** is a newer idea for our NUMERIC team, having hosted here at Nipissing for the first time in spring 2008. It was quite successful in terms of participation (i.e., 40 people involved) across the grade levels [three categories of Intermediate (7-8), Junior (9-10), and Senior (11-12)]. Undergraduate mathematics students, as part of an assignment for one of their undergraduate math courses, assisted secondary students in local schools with their Mathematics Fair projects. Students competed in pairs or individually, entering their poster in one of three overarching categories (i.e., Math Topic Explanations, Math Problem Applications, or Technology Demonstrations/Applications).

Students had to explain their projects to a panel of judges comprised of NUMERIC Council members throughout the afternoon, with the various awards being announced at day's end. There were several categories of awards with the two main/grand prize awards including a trip to the Field's Institute and a chance to present their Math Fair projects to those mathematicians/math educators in attendance at a Fields Education Forum.

The reason we are applying for CMS Endowment Fund support is that we would like to continue to implement these two events (competitions, fair) and be able to do the following:

1. Cover internal costs of **preparing for the events** (e.g., photocopies, postage for letters sent to schools, undergraduate student assistants doing this preparatory work, undergraduate mathematics students being sent out to assist local elementary/secondary students in preparing their Math Fair project);
2. Provide **certificates and awards** for participants and winners, respectively (e.g., paper certificates of participation, T-Shirts, Tim Horton gift certificates, medals, grand prize trip to Fields Institute in Toronto or something similar);
3. Further develop our NUMERIC website so that we can include **photo and digital video** (edited, and done with permission of participants) documentation of these events in order to share the resources, results, winners, etc. with a much broader audience (i.e., with a view to encouraging other universities to participate in cross-faculty, community-based mathematics activities like those we are trying to promote through NUMERIC).

The NUMERIC group in North Bay believes strongly that forging long-term connections with the local schools and teachers, in terms of both special event planning and participation, forms a critical part of fostering an increased interest in mathematics. A CMS Endowment Grant of \$2000/year for 2008-2011 would greatly help us to make these connections, a goal which we feel is consistent with the CMS *Statement of Purpose* (e.g., the advancement of mathematics education through joint projects with mathematics educators; championing mathematics through initiatives that explain, promote and increase the general understanding of mathematics and provide extra-curricular opportunities for students). Over the past few years we have been able to obtain small amounts of corporate support (e.g., prize donations) in our local community, but with CMS funding we would be able to (and intend to) promote the projects, especially the Mathematics Fair, more vigorously among the local and regional corporate sector.

Budget

Description	Revenue		
CMS Endowment Grant requested	\$2000.00	\$2000.00	\$2000.00
Expenses			
Mathematics Competitions (Junior and Senior)			
Announcements (Stampage), Photocopies	\$300.00	\$300.00	\$300.00
Undergraduate Student Assistance (32 hrs @ \$10.56/hr)	\$338.00	\$338.00	\$338.00
Certificates of Participation & Prizes (T-Shirts, posters, Medals)	\$450.00	\$450.00	\$450.00
Food/Snacks	\$100.00	\$100.00	\$100.00
Mathematics Fair			
Announcements (Stampage), Photocopies	\$150.00	\$150.00	\$150.00
Undergraduate Student Assistance (15 hrs @ \$10.56/hr)	\$160.00	\$160.00	\$160.00
Certificates of Participation & Prizes (T-Shirts, posters, Medals)	\$250.00	\$250.00	\$250.00
Food/Snacks	\$100.00	\$100.00	\$100.00
Website Development (Digital Video Editing and Design)	\$150.00	\$150.00	\$150.00
Total Expenses \$	\$1998.00	\$1998.00	\$1998.00

Other

Funding, partners, revenue potential, information on applicants such as publications or awards, at most 20 lines.

Faculty of Arts and Science (Mathematics)

Dr. V. Valov, NSERC Discovery Grant (Topology): *Dimension Theory and Continuous Selections*

Dr. A. Karashev, NSERC Discovery Grant (Topology)

Faculty of Education (Mathematics)

Dr. D. Jarvis (Nipissing University), Dr. Z. Lavicza (University of Cambridge), & Dr. C. Buteau (Brock University), SSHRC International Opportunities Fund Project Grant, 2008-09; Title: *Computer Algebra Systems (CAS) in University Instruction: An International Research Study on CAS Usage and Sustainability*

Hosted Conference: *First Canadian Computer Algebra- and Dynamic Geometry Systems in Mathematics Education Conference (CCADGME)*, Nipissing University, North Bay, Ontario

CCADGME Conference Website: <http://www.nipissingu.ca/ccadgme/index.htm>

Fields Notes CCADGME Report (January 2008, p. 12):

http://www.fields.utoronto.ca/aboutus/annual_reports/jan_2008_fn.pdf

Dr. D. Jarvis & Dr. D. Franks (Nipissing University), Canadian Mathematics Society's Canadian Math Education Forum, Working Group Leader; 2008-09; Title: *Crossing the Divide: Exploring a Family of Schools Approach to Grades 7-9 Mathematics Teacher Development in Ontario, Canada*

Dr. R. Wideman, Dr. D. Franks, & Dr. D. Jarvis (Nipissing University), Ontario Ministry of Education (OME) / Elementary Teachers Federation of Ontario (ETFO), 2008-09; Title: *Teachers Learning Together, The Math Journey*, Case study research and faculty support for action research case studies in Ontario

Dr. D. Franks (Site Coordinator), Prof. K. MacLeod, Dr. D. Jarvis, Council of Ministers of Education, Canada (CMEC), 2008; Project Title: *Teacher Education and Development Study-Mathematics (TEDS-M)*

Project start date: Fall 2008

Project finish date: Spring 2011